water. This is a good example of the change produced by affinity; here two invisible bodies unite to form a third different in all of its physical properties from those of which it is composed, It receives its name from two Greek words, *Hudor*, signifying water, and *Gennaein*, to produce, because without it water cannot be formed.

NITROGEN.—A gas very extensively diffused through the world, entering largely into the composition of the plants and animals, and forming about eight tenths of the air we breathe; with hydrogen it forms ammonia. It is sometimes called azote from two Greek words signifying not, and zoe, life, because when breathed alone, life will cease to exist.

AMMONIA.—A compound of hydrogen and nitrogen, and very generally diffused throughout nature, being a general product of the decay of animals and vegetables; it exists in the air we breathe, as has been satisfactorily proven, united to carbonic acid. It is called ammonia, because first made in large quantities at the Temple of Jupiter Ammon, from the dung of camels—when united to carbonic acid it forms what is familiarly known as smelling salts, volatile alkali from its great volatility; hartshorn, because made from the horns of Stags, &c.

CARBON.—Charcoal in common language; forms a very large proportion of the structure of animals and vegetables, and is the residue left when they are subjected to a red heat, without the access of air. *Coke* is the charcoal from coal—Ivory Black is the charcoal from bones—Lamp Black the charcoal from Resin. The Diamond is but chrystalised charcoal, and Black Lead contains from 90 to 95 per cent. of it. Wood charcoal has the property of absorbing many times its volume of different gases, and of giving them up again when heated. This depends entirely on its mechanical structure, all porous substances acting in the same way to a greater or less extent.

CARBONIC ACID, formed by the union of oxygen with carbon, and exists in the gaseous form when not combined with some other body; it is extensively diffused through the earth, air and water; is always produced by the burning of wood, and is expired from the lungs of animals in breathing. It is found united to quick lime, and with it forms marble and the different varieties of lime-stone, from which it is expelled by burning. It is the escape of this acid which produces effervescence when soda or seidlitz powders are mixed, and which also causes effervescence when vinegar is poured upon marl.

It is this gas which sometimes causes death to persons who go down into wells; it extinguishes burning bodies, and is called from this fact FIRE-DAMP, sometimes also *choke-damp*, from its causing, when breathed, spasms of the windpipe. Death has sometimes occurred to persons sleeping in a close room, from the production of this gas by a pan of burning charcoal.

This is another good example of the changes produced by affinity; here charcoal which can be seen, felt and handled, when united to oxygen, assumes the gaseous form, becoming invisible and intangible.